

Data to insight to action:

Why workflow management is the perfect use case for IoT



By Charles Paumelle and Tim Panagos

“If you can’t measure it, you can’t improve it.” This widely quoted jeremiad has been wrongly attributed to the storied Austrian-American business consultant Peter Drucker for decades. In fact, Drucker never said it, as Peter Zack of the Drucker Institute explains in [this blog post](#). Yet its core principle remains faithful to the great guru’s thinking, and indeed it is a core tenet of those who seek to improve business performance. Whether you employ Lean manufacturing principles to reduce waste, or Six Sigma to reduce variation or other approaches to drive efficiencies and quality, a fact Drucker would not dispute is that reliable data is vital to understand what is happening across your value chains, both from an asset and a human performance standpoint. Many companies embark on digital transformation initiatives with lofty goals. But without empirical data, these initiatives risk being distractions that draw resources away from corporate priorities without delivering long-term value.

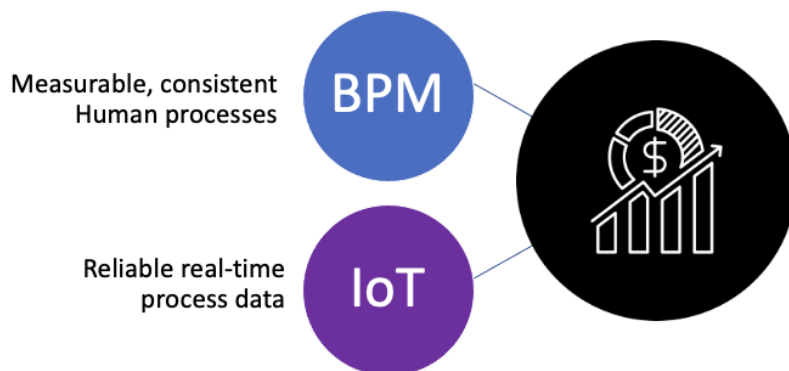
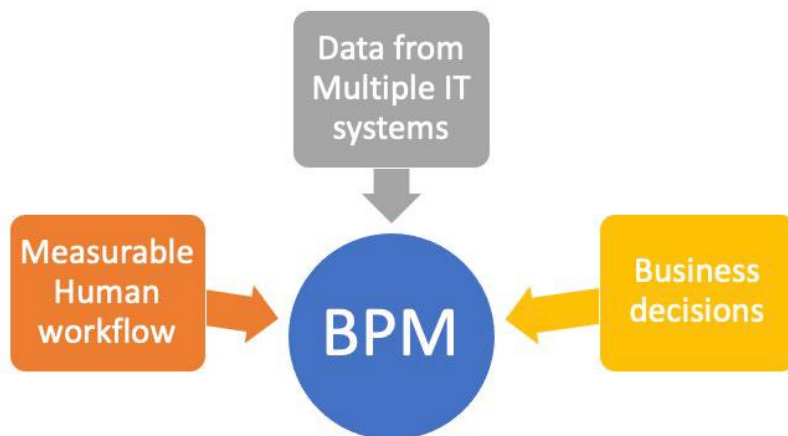


Figure 1: Combining the power of BPM and IoT

The combination of Internet of Things (IoT) data streams and Business Process Management (BPM) software that optimizes task-oriented human workflow offers a unique opportunity for taking productivity, quality control and general improvements in business performance to new and unprecedented heights.



*Figure 2: Typical BPM systems combine the tracking and prescriptive insights of human tasks with data coming from disparate IT (Information Technology) systems that inform and improve human and automated business decisions. This leads to faster, more effective and **more** compliant process management.*

Prior to co-founding Microshare, a leading global Smart Building data company, we spent the formative years of our careers engrossed by BPM, optimizing varied processes with the primary lens of human workflow and business rules top of mind. As key players at Business Process Management (BPM) pioneer Pegasystems (NASDAQ: PEGA), we drove business improvement across many industries and developed powerful use cases for large enterprises. The focus was always on identifying inefficiencies in activities and decisions made by humans and supported by disparate systems and processes. As an example, consider a call center agent manually gathering information from a customer: The data collected is supported by separate IT systems designed to perform tasks such as identity verification, cyber security assurance, credit score checks and previous transactions history. Our challenge was to automate these processes, tying the human steps (the “workflow”) with direct integration of the information systems and then teaching computers to make critical judgments using a rules engine that streamlines the process.

This reduced waste (a nod to Lean) and made outcomes faster, more accurate and more predictable (a la Six Sigma).

This was a remarkably successful approach for the large service-based enterprises we served then in the Banking, Insurance, Telecom and Government sectors. It secured the success of our first start-up, Knowledge Rules, which in 2010 we sold to global systems integrator Accenture. Knowledge Rules remains the foundation of Accenture's 70,000-strong Talent Management and HR (Human Resources) Operations practice, embedding BPM and transformation concepts we pioneered in large businesses around the world.

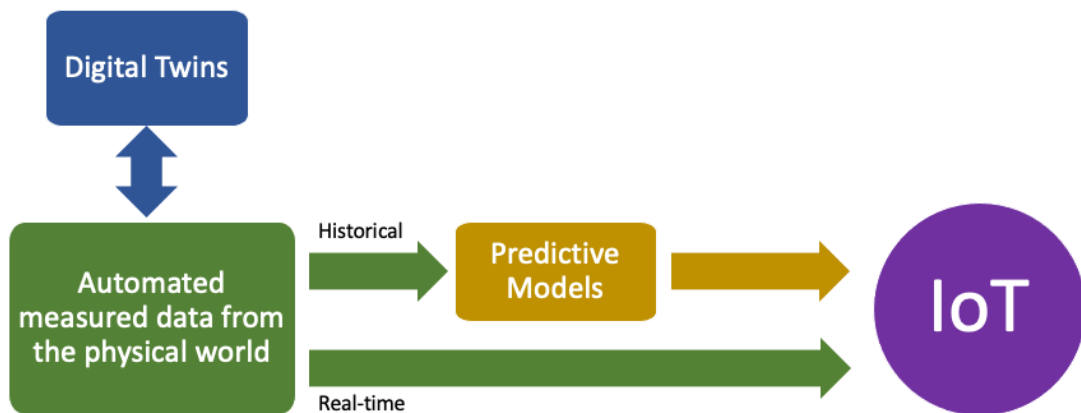


Figure 3: Typical data flows in an IoT solution: Sensors measure the physical world and create automated data flows which are enhanced by the meta-data contained in Digital Twins (in effect, the physical location of the sensors). Predictive models use accumulated sensor data to forecast future performance while real-time data feeds real-world validation or changes to the models.

IoT sensors and Digital Twins – virtual, digital representations of real-world assets – are another way to systematically measure and improve business processes. Complex environments such as manufacturing and engineering demonstrated the powerful utility of this approach in heavy industry via Industrial IoT (IIoT), now omnipresent in the world's most successful industrial companies. In organizations where the suppression of defect rates is a primary KPI (key performance indicator), being able to automatically measure mechanical performance and use data-fed models to simulate outputs brings continuous improvements, far outstripping the impact of a foreman with a clipboard.

IoT's growing prevalence beyond the Manufacturing sector has brought this 24/7 Big Data advantage to new areas of the economy, gathering data on a scale unimaginable just 10 years ago. It has enabled dreams of predictive models to become a reality because IoT – and only IoT – produces enough data from real-world assets and processes to feed the predictive models.

A case in point: Space utilization in Commercial Real Estate. Microshare's IoT data platform, fed by IoT sensors, enables facilities managers, maintenance staff and cleaning crews to plan more effective and efficient strategies to meet their goals and optimize resource allocation. Using data models that predict the usage patterns of large commercial buildings based on accumulated real-time traffic data from sensors, facilities managers can anticipate demand, calibrate energy and lighting in accordance with occupancy patterns, while cleaning crews can achieve their goals with real-time data on usage that often shaves 20% to 30% off the personnel and supply costs required using traditional methods. This ROI (return on investment) accrues quickly, for example, when cleaners have data indicating that unused spaces do not have to be cleaned on a given day. This avoids inefficient labor allocation (Lean in action), allows a "cleaning on demand" approach that increases customer satisfaction and opens the scope for addressing specific service requests more quickly, avoiding guess work (a Six Sigma staple).

This is just one example of the transformational impact Microshare has on our global customer base as our clients tap into new data streams to better measure and streamline their operations. This is achieved with a combinations of best-in-class IoT sensors, low-cost, quick-to-deploy connectivity and our deep experiences in data management and manifestation. All this is enhanced with sophisticated analytics, alerts and industry benchmarking via our EverSmart suite of Smart Building solutions, which create further insights and calls to action. This can be as simple as an alert indicating that "Soap refill is needed in Building A in the third-floor Gender Neutral washroom."

Or it can prevent major damage or sanitary problem with a report of leaking toilets, malfunctioning hand dryers or damage to physical assets. These calls to action derived from IoT sensors and anonymized feedback monitors are BPM-defined, inviting human intervention in a timely, prioritized, monitored and auditable pattern.

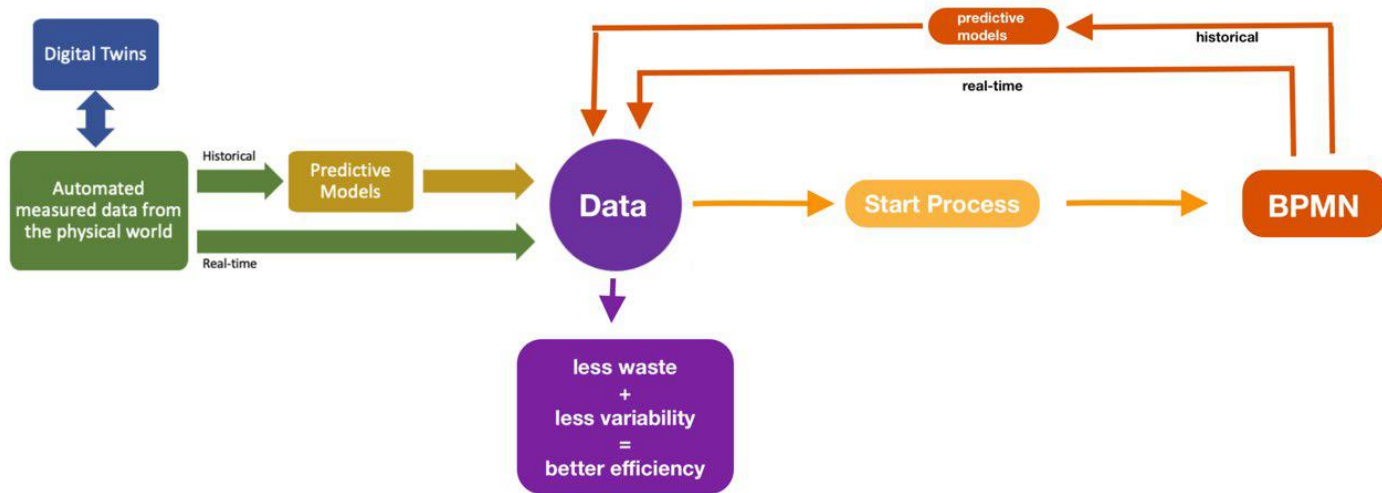


Figure 4: IoT data triggering a process orchestrated by the BPM engine, which in turn gathers more data about the human part of the process and further feeds the model for better future predictions.

Conclusion: IoT + BPM = Efficiency 2.0

The Microshare team is in a unique position to bring together BPM and IoT, having spent the last nine years building and rolling out a secure, enterprise-grade IoT data platform drawing on decades of BPM design and implementation experience.

Prompting human response to sensor-derived events is the first step on a journey to truly optimized business efficiency. The integration of IoT and BPM offers the opportunity to measure all parts of the process. This includes a 24/7, real-time control performed by the sensors, events and alerts when exceptions are identified in the data stream, which in turn generate tasks to be performed by humans. The process is measured and controlled from start to finish, offering a wealth of time in motion and quality data to aid business transformation professionals.

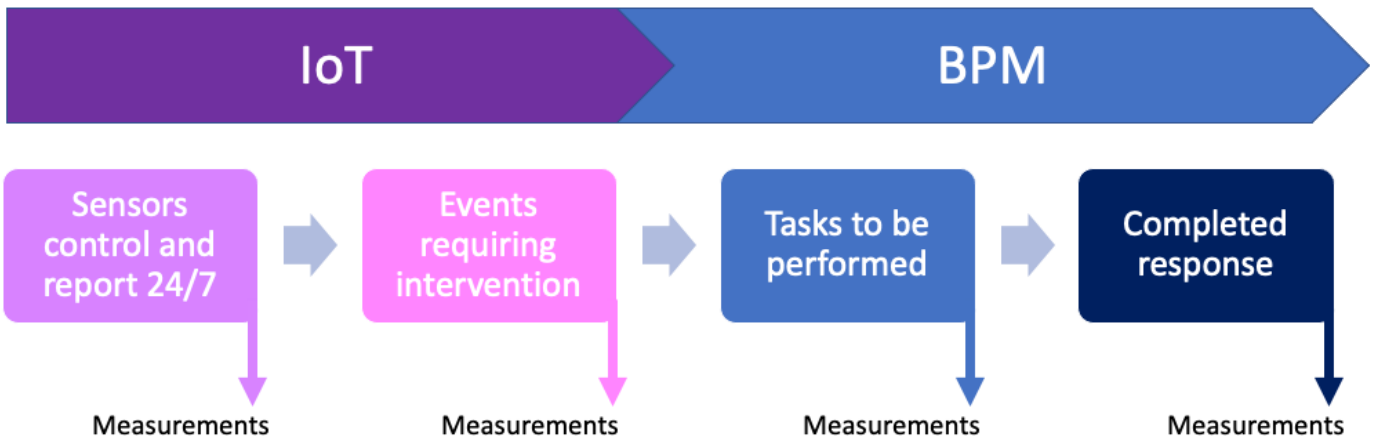


Figure 5: Business performance gets measured all the way through the process, from the automated data capture performed by the sensors to a completed human task.

To streamline this process, Microshare offers React-M, a simple BPM mobile app for field technicians, maintenance staff, cleaning crews and other service providers. React-M receives tasks created by IoT events computed on the Microshare cloud. These tasks are displayed as a notification on the phone or tablet of the user, who can then claim that task and remediate. React-M guides the user step by step from alert to resolution, recording the time taken at each step. Reporting capabilities provide the opportunity to check performance against Service Level Agreements (SLAs), compliance vis-à-vis regulatory requirements or employee training demands, all aimed at feeding specific business improvement initiatives.

At Microshare, we are thrilled to preside over the marriage of these two vital and complementary technologies. Our deep experience in the BPM, AI and IoT worlds give us unique insight into how this marriage will work, positioning us to help our clients derive maximum benefit from the digital transformation that results. To learn more about how Microshare’s Sensing Network and EverSmart solutions can help you meet your goals, contact sales@microshare.io.